

What is claimed is:

1. A multiple antenna comprising:

(a) a ground electrode;

5 (b) a dielectric substrate disposed on a top surface of the ground electrode;

(c) a planar antenna electrode disposed on a top surface of the dielectric substrate;

(d) a feeding terminal electrically coupled to the planar antenna electrode;

10 (e) an upper antenna electrode disposed above the planar antenna electrode with a given space in-between such that the upper antenna electrode faces the planar antenna electrode; and

(f) a feeding section electrically coupled to the upper antenna electrode,

15 wherein the upper antenna electrode has an opening facing the planar antenna electrode.

2. The multiple antenna of claim 1, wherein the upper antenna electrode is shaped like a ring.

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3. The multiple antenna of claim 2 further comprising:

a plurality of ring-shaped upper antenna electrodes disposed above the planar antenna electrode with a given space and inside the opening of the upper antenna electrode, which is then an outer upper antenna electrode, and each one of the plurality of upper antenna electrodes facing the  
25 planar antenna electrode; and

a plurality of feeding sections electrically coupled to the

plurality of upper antenna electrodes,

wherein the plurality of upper antenna electrodes disposed concentrically.

5           4. The multiple antenna of claim 1 further comprising:

a plurality of inner upper antenna electrodes disposed above the planar antenna electrode with a given space and inside the opening of the upper antenna electrode, which is then an outer upper antenna electrode, and each one of the plurality of upper antenna electrodes facing to the planar  
10 antenna electrode; and

a plurality of feeding sections electrically coupled to the plurality of inner upper antenna electrodes.

5. The multiple antenna of claim 4, wherein an end of the feeding  
15 section electrically coupled to the outer upper antenna electrode faces to and keeps away from the outer upper antenna electrode with a given space, and electrostatic capacitive coupling formed between the end of the feeding section and the outer upper antenna electrode allows feeding.

20           6. The multiple antenna of claim 4, wherein each one of first ends of the feeding sections electrically coupled to each one of the inner upper antenna electrodes faces to and keeps away from each one of the inner upper antenna electrodes with a given space, each one of second ends of the feeding sections passes through a general center of the planar antenna electrode and  
25 extends to an underside of the ground electrode, and electrostatic capacitive coupling formed between each one of the first ends of the feeding sections and each one of the inner upper antenna electrodes allows feeding.

7. The multiple antenna of claim 4, wherein the outer upper antenna and the inner upper antennas are shaped like rings and disposed concentrically.

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8. The multiple antenna of claim 7, wherein an outer diameter of the upper outer antenna electrode is generally equal to at least one side of the planar antenna electrode.

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9. The multiple antenna of claim 8, wherein the outer upper antenna electrode is upheld by a plurality of supporting sections disposed on the top surface of the dielectric substrate and outside the planar antenna electrode.

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10. The multiple antenna of claim 9, wherein a ring width of the outer upper antenna electrode is generally equal to a half of a radius, where the ring width measures from an inner circle to an outer circle of the ring, and the radius measures from a center of the ring to a center line between the inner circle and the outer circle.